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AGRICULTURE

No. 1244

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MAJOR CROP PROGRESS AND WEATHER REPORTING

'PRAVDA' CARRIES LONG-TERM WEATHER FORECAST FOR JULY

LD080857 Moscow PRAVDA in Russian 1 Jul 80 p 6

[Unattributed report: "Summer Lightning Blazes"]

[Excerpt] "Month of hay and lightening," "busy month"--that is what July is called. Hay cutting is underway, the grain crops are ripening.... What will this July be like? Here is what the USSR hydrometerological center has reported.

In the European part of the USSR the average air temperature over the month is expected to be close to normal while precipitation will be near or below normal. Many sunny, warm days are forecast but heavy rain will sometimes fall and there will be thunderstorms. Most of the time the thermometer will register 19-24 degrees in northern regions, 22-27 degrees in the Central Region and 25-30 degrees in the south.

In Moscow the temperature will be 13-18 degrees at night and 22-27 degrees and up to 30 degrees by day on individual days. One or two brief cold spells are possible: 6-11 degrees at night and 17-20 degrees by day.

In the northern and central Urals the daytime temperature will sometimes rise to 25-30 degrees but sometimes it will be cool: 6-11 degrees at night and up 16-21 degrees by day.

In the agricultural oblasts of West Siberia and North Kazakhstan the air will sometimes warm to 32-33 degrees. Rainfall is expected to be close to normal over the majority of the territory.

In the south of Krasnoyarskiy Kray and the Baykal and Transbaykal regions the temperature will be 9-14 degrees at night and 23-28 degrees and sometimes 30-35 degrees by day. In individual periods the temperature will drop to 2-7 degrees at night and 16-21 degrees by day. Rainfall will be near or a little below normal.

In Amurskaya Oblast, the south of Khabarovskiy Kray and Primorskiy Kray July is expected to be far cooler than usual. However, here too hot days will be frequent--25-30 degrees. Rainfall will be near or below normal.

In the continental regions of the Yakutskaya ASSR and Magadanskaya Oblast the daytime temperature may fluctuate from 15-20 to 25-30 degrees. However, individual nights will be cold and ground frosts are possible in low-lying areas.

On Sakhalin and Kamchatka the weather is expected to be moderately warm, rainfall will be infrequent and it will be cloudy.

On the Arctic coast of Siberia and the Far East slight frosts are possible on individual days and by day the thermometer may rise to 17-22 degrees.

In the Central Asian Republic and South Kazakhstan the thermometer reading will be 33-38 degrees for most of the time.

CSO: 1824

MAJOR CROP PROGRESS AND WEATHER REPORTING

GRAIN HARVEST NOTES FROM UKRAINE

[Editorial Report] Kiev SIL'S'KI VISTI in Ukrainian 13 Jul 80 p 1 reports as a result of certain weather conditions in several oblasts last fall and this spring stunted winter crops have been noted on significant stretches, while the spring grain crops are tall and inclined to lodging. This makes for real difficulties in equipment utilization. In order to avoid these combines and windrowers should be reequipped in a timely manner.

Stunted grain should be harvested primarily by direct combining, using the wide swath windrowers prepared for this.

If it becomes necessary to harvest stunted grain in two phases (upon uneven ripening) then to obtain dense windrows the width of the exit window [vykydne vikno] on the ZhVN-6 windrower should be decreased, forming a passive extension of the transporter.

Formation of windrows by a ZhRS-4.9 windrower in harvesting stunted, weed infested grain is facilitated by overlapping part of the exit window with a piece of sheet steel in the form of an extension of the right or left transporter (or both simultaneously).

Windrowers are being reequipped to harvest lodged and long-strawed grain. Grain growers are preparing to dry grain under increased moisture conditions.

Kiev SIL'S'KI VISTI in Ukrainian 13 Jul 80 p 1 notes the hot dry weather is making for quick maturation of the grain in Zaporozhskaya Oblast. In Yakimovskiy and Priazovskiy rayons it has been swathed in windrows on almost half the area.

Moscow PRAVDA in Russian 7 Jul 80 p 1 notes the grain area in Zaporozhskaya Oblast exceeds 1 million hectares, of which winter grains occupy 730,000 hectares. Grain crop condition is good. There is every opportunity to cut the grain in 6 to 7 days and thresh it in 13 to 14. But these will be difficult tense days. The harvest is expected to be complicated. There is much lodging in winter crops. the straw mass is large.

Agricultural workers in Zaporozhskaya Oblast will gather 3.3 million tons of grain and sell 1.3 million tons of grain to the state.

Moscow SEL'SKAYA ZHIZN' in Russian 19 Jul 80 p 1 notes large-scale harvesting of grains has gone forth in the southern rayons of Donetskaya Oblast. Equipment operators will harvest grain from an area of about 1 million hectares.

Kiev SIL'S'KI VISTI in Ukrainian 18 Jul 80 p 1 reports nine oblasts are already harvesting grain: Krymskaya, Khersonskaya, Nikolayevskaya, Odesskaya, Dnepropetrovskaya, Donetskaya, Zakarpatskaya, Zaporozhskaya and Kirovogradskaya. As of 17 July early grains had been cut on 1,392,000 hectares and threshed on 518,000 hectares.

Simultaneously with gathering the grain they are preparing the soil and seed for the sowing of winter crops.

CSO: 1824

MAJOR CROP PROGRESS AND WEATHER REPORTING

GRAIN HARVEST NOTES FROM NORTH CAUCASUS, LOWER VOLGA

[Editorial Report] Moscow SEL'SKAYA ZHIZN' in Russian 19 Jul 80 p 1 notes enterprises in the Adegey Autonomous Oblast have begun sales of grain to the state. The primary trait of grain from this harvest is its quality. The specific weight of strong and valuable wheat exceeds 80 percent.

Moscow IZVESTIYA in Russian 15 Jul 80 p 1 indicates that usually in mid-summer the entire Stavropol' Steppe is becoming dried out and soil worn. But now the steppe is a spring green, flocks of sheep and herds of cattle are grazing here and there to their hearts' content on the tall grass. The waves of grain have still not ripened completely--large-scale cutting began only in the last few days.

And there is much to cut in Stavropol'skiy Kray--the crop area amounts to 1,858,000 hectares. The barley headed almost simultaneously with the wheat. And the grain growers understood: they would have to cut one and the other almost simultaneously, and not in certain zones but almost everywhere in Stavropol'skiy Kray.

The grain crops are good indeed, although in places rains and winds have knocked down and twisted the barley and wheat stands, the weeds have shot up. And yet the majority of the grain growers' worries are behind. What remains is to complete the main task--to gather the main grain harvest fully, without loss and to sell as much as possible to the state, especially strong wheat.

Stavropol'skiy Kray is harvesting on a large scale. As of the morning of 14 July grain had been cut on 1.35 million hectares and threshed on more than 400,000 hectares.

Moscow SOVETSKAYA ROSSIYA in Russian 19 Jul 80 p 1 reports the Khasavyurtovskaya Steppe, the granary of Daghestan, has produced a rich harvest. The harvest was completed in quite a short time. Agricultural workers in Kizilyurtovskiy Rayon gathered the most abundant grain harvest in Daghestan--33.4 quintals per hectare. Grain reception points are working day and night. Enterprises in Daghestan are ahead of the usual schedule by 2 weeks.

Moscow PRAVDA in Russian 11 Jul 80 p 1 notes the grain area in Rostovskaya Oblast this year amounts to 3.5 million hectares, of which 2 million hectares are given over to winter crops. Grain growers here have pledged to gather no less than 9 million tons of grain.

The harvest this year promises to be complicated. Strong winds and pouring rains have twisted and lodged the grain over large stretches. No less than 80 percent of the area will be harvested in two phases. At the enterprises they have prepared special devices, windrowers have been reequipped to cut low.

Moscow SEL'SKAYA ZHIZN' in Russian 19 Jul 80 p 1 notes that as usual equipment at the kolkhozes and sovkhozes on the left bank of Saratovskaya Oblast were the first to begin harvesting grain. Here where the main grain fields are concentrated the grain crops ripen quicker than on the right bank. The cutting is going well in Fedorovskiy, Novouzenskiy, Krasnokutskiy and Sovetskiy rayons.

The grain area amounts to over 4 million hectares. The most intensive grain varieties occuped over 2.5 million hectares, significantly more than last year.

They will sell no less than 3.5 million tons of grain to the state, of which a weighty share will be strong and durum wheat.

Moscow SOVETSKAYA ROSSIYA in Russian 19 Jul 80 p 1 reports in Volgogradskaya Oblast all enterprises, and there are more than 400 of them, are now involved in large-scale harvesting of grain.

CSO: 1824

MAJOR CROP PROGRESS AND WEATHER REPORTING

GRAIN HARVEST NOTES FROM SOVIET CENTRAL ASIA

[Editorial Report] Tselinograd FREUNDSCHAFT in German 8 Jul 80 p 1 reports that in Alma-Atinskaya Oblast the first convoys with grain from the new harvest have arrived at reception points in Kurtinskiy, Iliyskiy, Kaskelenskiy and Dzhambulskiy rayons.

Tselinograd FREUNDSCHAFT in German 8 Jul 80 p 1 notes that in Taldy-Kurganskaya Oblast the first convoys have delivered grain from the new harvest to the oblast's grain reception enterprises. The major portion of the grain is coming from Kerbulakskiy, Karatal'skiy and Kirovskiy rayons.

Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 10 Jul 80 p 1 reports that in Taldy-Kurganskaya Oblast the grain harvest campaign is expanding. Enterprises in the mountain rayons are now involved. Equipment operators will harvest grain crops from 53[illegible],[illegible]00 hectares.

Moscow IZVESTIYA in Russian 11 Jul 80 p 1 reports an article appearing on 11 July reviews grain harvest progress in Kirgizstan. Much of the article is given over to making the point that the harvest has gotten underway in Kirgizstan and that it is progressing in an orderly manner from the valleys into the mountainous areas, even on slopes on which there is a degree of danger in harvest equipment operations. The article then turns its attention to the efforts at a kolkhoz in Naukatskiy Rayon, Oshskaya Oblast, mentioning that the wheat and barley crops are good in the hills here, despite having suffered from hot weather in May and June. The article restates Kirgizstan's pledge to gather 1.5 million tons of grain.

CSO: 1824

MAJOR CROP PROGRESS AND WEATHER REPORTING

GRAIN HARVEST NOTES FROM THE UKRAINE

[Editorial Report] Kiev SIL'S'KI VISTI in Ukrainian 29 Jul 80 p 1 reports there will be grain harvesting from 820,000 hectares in Khersonskaya Oblast this summer. They will harvest 60 to 80 per cent of the grain in two phases, permitting no long gap between cutting and picking up the windrows. Forty to sixty hectares will be harvested per day by each windrower.

Moscow SEL'SKAYA ZHIZN' in Russian 29 Jun 80 p 1 notes the combines have gone out onto the barley fields of Krymskaya and Odesskaya Oblasts. Two phase harvesting will help make for maximum equipment utilization and prevention of harvest losses.

Moscow SEL'SKAYA ZHIZN' in Russian 3 Jul 80 p 1 reports the grain has ripened in Krymskaya Oblast. Equipment operators in Bakhchisarayskiy, Simferopol'skiy and Krasnogvardeyskiy Rayons were the first to take their harvest equipment out onto the fields. The barley is swathed in windrows on the first thousands of hectares. Thrashing will begin soon. They are getting more than 30 quintals grain per hectare. But the stretches with the better yield are ahead. Winter wheat promises an especially abundant harvest. Agricultural workers will gather no less than 32.9 quintals grain per hectare.

Moscow SEL'SKAYA ZHIZN' in Russian 27 Jun 80 p 1 reports Ovidiopol'skiy Rayon, Odesskaya Oblast, will sell 32,000 tons grain to the State, vis a vis a plan figure calling for the sale of 27,000 tons grain. Odesskaya Oblast will sell no less than 1,300,000 tons grain to the State. Grain [kolosovyye] crops are to be harvested from more than 800,000 hectares. Twelve to fourteen days have been allowed for the harvest.

CSO: 1824

MAJOR CROP PROGRESS AND WEATHER REPORTING

GRAIN HARVEST NOTES FROM UKRAINE, RSFSR, BELORUSSIA

[Editorial Report] Kiev PRAVDA UKRAINY in Russian 11 Jul 80 p 1 reports agricultural workers in Zaporozhskaya Oblast have begun harvesting grain. They will sell 1.3 million tons of grain to the state.

Moscow IZVESTIYA in Russian 13 Jul 80 p 1 notes abundant rains fell over the Donbass all spring, and now grain and other crops are ripening evenly in the fields. Already in May enterprises in Donetskaya Oblast began cutting winter crops intended for green chop, and at the beginning of June the livestock rations were augmented by alfalfa.

Moscow PRAVDA in Russian 13 Jul 80 p 1 reports grain growers in Voronezhskaya Oblast will gather 4.4 million tons and sell 1.6 million tons of grain to the state. The work will be difficult, demanding of effort to the limit. An abundant harvest has grown up but the rains--in many places with hurricane winds and hail--lodged part of the grain. Besides this the ripening has been held up about 2 weeks. This creates additional difficulties. A succession of tasks is approaching: harvesting corn, sugar beets and other late crops; preparing the soil for the new crops, and sowing winter crops. But you cannot give orders to the weather. Workers in the fields are determined to gather in the grain in 10 to 15 days, quicker than before. This will allow them to conduct other work in a timely manner.

Moscow TRUD in Russian 29 Jun 80 p 1 reports the first cut of grass has been taken from the irrigated meadows of Saratovskaya Oblast. This year's feed harvest is weightier than last year's.

Moscow GUDOK in Russian 13 Jul 80 p 1 reports local inventors have helped agricultural workers in Kulundinskiy and Tanbunskiy guarantee the harvest of stunted grasses. They equipped SK-4 grain combines with additional ventilators. The cut at the low setting and the ventilators blow the cut mass into covered wagons.

Moscow IZVESTIYA in Russian 1 Jul 80 p 1 reports after the abundant rains in Belorussia the sown and natural grasses grew quickly. They have already been gathered in on half a million hectares.

Moscow GUDOK in Russian 13 Jul 80 p 1 reports agricultural workers in Belorussia have gathered in the grasses from a million and a half hectares--more than half the entire area. At enterprises which have taken off the first cut brigades of mowers have gone over into the forest glades and gully inclines.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

GRAIN HARVEST REPORT FROM SOUTHERN RSFSR, UKRAINE

[Editorial Report] Moscow SEL'SKAYA ZHIZN' in Russian 12 Jul 80 p 1 reports the harvest campaign has begun on the grain fields of Kalmykia, which comprise almost half a million hectares. Thousands of tons of grain from the new harvest have been delivered to the state. Agricultural workers in Gorodivikovskiy and Yashaltinskiy Rayons were the first to begin grain procurement.

Moscow SOVETSKAYA ROSSIYA in Russian 9 Jul 80 p 1 notes yesterday was the start of the grain harvest for many equipment operators in the southern rayons in Volgogradskaya Oblast. Agricultural workers will harvest grain from an area of almost 4 million hectares in two phases. Volgogradskaya Oblast will sell no less than 4.5 million tons of grain to the state.

Moscow SOVETSKAYA ROSSIYA in Russian 9 Jul 80 p 1 reports Krasnodarskiy Kray has begun sales of grain to the state. Yesterday hundreds of tons of grain were delivered to elevators in major grain rayons--Kurganinskiy and Ust'-Labinskiy.

Moscow SEL'SKAYA ZHIZN' in Russian 12 Jul 80 p 1 notes Krasnodarskiy Kray has come into the time of the main grain harvest--large scale cutting and thrashing of winter wheat. The primary area was sown with "Bezostaya-1," more than 600,000 hectares were given over to strong and valuable wheat. The crops got timely and sufficient top dressing. The first thrashings show that plans and pledges for sales to the state will be fulfilled and overfulfilled. The wheat harvest everywhere in Krasnodarskiy Kray is going forth in two phases.

Moscow PRAVDA in Russian 12 Jul 80 p 1 reports at enterprises in Krasnodarskiy Kray the harvest is in full swing. Grain growers will harvest 9.5 to 10 million tons of grain from 2.5 hectares. The agricultural workers are undergoing a difficult test. Much grain is lodged. Under these conditions they must creatively apply various modes of harvesting. Large grain losses have been permitted. People have had to go out to pick up the ears.

Moscow SEL'SKAYA ZHIZN' in Russian 12 Jul 80 p 1 notes in all the autonomous republics of the central north Caucasus the grain harvest began almost simultaneously, but later than usual by 7 to 10 days. Prolonged rains in the spring moved the harvest dates back but to no small degree helped the grain growers with their goal of getting an abundant harvest. The first threshings everywhere are yielding 25 to 28 and more quintals of barley per hectare and the wheat field promises a still weightier harvest.

Moscow SEL'SKAYA ZHIZN' in Russian 12 Jul 80 p 1 notes in Kabardin-Balkaria grains and pulses will be harvested from an area of 105,000 hectares.

Moscow PRAVDA in Russian 9 Jul 80 p 1 reports the combined grain area in Omskaya and Novosibirskaya oblasts amounts to almost 5 million hectares. Omskaya Oblast will sell no less than 1.7 million tons of grain to the state. Novosibirskaya Oblast will sell 1,545,000 tons of grain to the state.

Moscow SEL'SKAYA ZHIZN' in Russian 12 Jul 80 p 1 notes as always in Stavropol'skiy Kray this year's harvest started in the eastern rayons--Neftekumskiy, Levokumskiy and Kurskiy, where the grain ripened earlier. But the hot dry weather shoved the dates together. And in a few days the combines were working in all steppe rayons in Stavropol'skiy Kray.

Preliminary calculations show that agricultural workers in Stavropol'skiy Kray will be able to deliver no less than 1.5 millions of strong and valuable wheat to the state.

Moscow SEL'SKAYA ZHIZN' in Russian 12 Jul 80 p 1 reports after the barley came the harvest of the main grain crop in the Ukraine--winter wheat. Equipment operators in the southern oblasts have begun cutting it. Early grains have been cut on 200,000 hectares in Krymskaya, Odesskaya, Khersonskaya, Zaporozhskaya and Nikolayevskaya oblasts and threshed on half that area. Grain growers in Krymskaya Oblast are also working on the early grain fields at night using paired windrowers which hastens the cutting quite a bit.

Due to this year's weather conditions grain growers in the Ukraine have decided on two phase harvesting.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

GRAIN HARVEST NOTES FROM RSFSR, KAZAKHSTAN

[Editorial Report] Moscow TRUD in Russian 11 Jul 80 p 1 reports in Orenburskaya Oblast they will harvest grain from an area of 4.8 million hectares, 250,000 hectares more than in 1979.

Moscow SEL'SKAYA ZHIZN' in Russian 15 Jul 80 p 1 notes grain growers in Saratovskaya Oblast have begun large scale harvesting of grain. They will harvest grain from 4 million hectares. The late sowing dates forced the cutting of winter and spring grains closer together. This forces equipment operators to work at an accelerated pace. Wide swathe windrowers are being used.

Moscow SEL'SKAYA ZHIZN' in Russian 15 Jul 80 p 1 indicates agricultural workers in the Adygey Autonomous Oblast have begun harvesting winter wheat. Grain growers are counting on gathering no less than 38 to 39 quintals of grain per hectare.

Moscow SEL'SKAYA ZHIZN' in Russian 12 Jul 80 1 reports the harvest campaign has come to Kazakhstan. It is being conducted in the southern oblasts where they will gather the harvest from 2.24 million hectares. The grain crop is good everywhere. In Chimkentskaya Oblast, for example, such rayons as Tyul'kubasskiy, Saymarskiy and Leninskiy are gathering from 18.9 to 19.6 quintals of wheat per hectare. And this is from bogharic fields. From the irrigated ones they are getting 45 quintals per hectare.

With every day the flow of grain from the new harvest grows.

Moscow SEL'SKAYA ZHIZN' in Russian 15 Jul 80 p 1 reports the southern rayons in Ural'skaya Oblast have begun cutting winter crops. The crops are being cut in windrows everywhere. Winter crops will be cut from an area of over 100,000 hectares in Ural'skaya Oblast.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

EARLY GRAIN HARVEST PROJECTIONS FROM CENTRAL CHERNOZEM

[Editorial Report] Krasnodar SEL'SKIYE ZORI in Russian No 5, May 80 pp 16, 21, 24, 27, 33 reports that in Voronezhskaya Oblast during the 10th Five-Year Plan the grain area was expanded by almost 100,000 hectares and now amounts to 1.8 million hectares or 57 percent of the crop land. The winter grain area has grown significantly. Over 1 million hectares were sown this year, twice the usual area. Agricultural workers will thresh 25 quintals of grain per hectare.

In Belgorodskaya Oblast they originally planned to gather no less than 26 quintals of grain per hectare. Considering this a minimum they reexamined their plans and now intend to get 28.5 quintals of grain per hectare, and a gross harvest of 2.7 million tons.

In Kurskaya Oblast they intend to get 25 quintals of grain per hectare, and to produce 2.7 to 3 million tons of grain. Winter grains were sown on 600,000 hectares or 52 percent of the whole area.

Workers at the kolkhozes and sovkhozes in Lipetskaya Oblast will get 23 quintals of grain per hectare, and a gross harvest of 2.2 million tons. For the first time winter crops were sown on 550,000 hectares.

In Lipetskaya Oblast they will harvest 3.1 million tons of grain, 23 quintals per hectare.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

GRAIN HARVEST NOTES FROM SOUTHERN USSR

[Editorial Report] Moscow SOVETSKAYA ROSSIYA in Russian 4 Jul 80 p 1 reports enterprises in the vallied of the Terek of North Ossetia have begun calculating grain thrashing rates. Here they have begun large scale harvesting of winter grains [kolosovyye].

Moscow SEL'SKAYA ZHIZN' in Russian 2 Jul 80 p 1 notes among the lowland rayons in Daghestan, Kayakentskiy Rayon is getting the highest barley yield -- 40 quintals per hectare. Kizilyurtovskiy Rayon is next with 33 quintals of barley per hectare. Enterprises in Daghestan have set themselves the task of finishing thrashing the barley in three to four days and more quickly sowing the catch crop corn on the harvested stretches with good soil mixture.

Kiev SIL'S'KI VISTI in Ukrainian 1 July 80 p 4 reports the latter days of June turned out wet and cool this year. This in general made for crop growth, especially early grains and grasses. However, their development lags behind the normal by almost a week and a half to two weeks. At the same time favorable conditions were created for weed growth. The agricultural workers made a great effort to decrease the weediness in the fields. Although this work is continuing now it would be premature to start taking it easy. As observation showed, the number of various weeds per square meter of row and technical crop in some cases reaches some hundreds. Heavy weed infestation has been observed also on non-oversown winter crop areas and on spring grain and pulse crop areas. And this may significantly affect the gathering of the harvest the more so since weed infestation leads to uneven ripening of grain crops.

In general the situation for the early grains in the Ukraine is good to excellent. It is gratifying to see an abundant harvest ripening in the fields.

Compared with other years there is significantly less lodging of early grains this year. However there is never an easy harvest, for the "grain factory" is always under the open sky, with its unexpected and unique surprises.

At the end of June early grains began to ripen in the extreme south of the Ukraine, the harvest got under way. In July it will be expanded to other regions.

Moscow TRUD in Russian 2 July 80 p 2 reports the harvest came yesterday to the central chernozem steppe of the Kuban'. Combines and reapers went out onto the fields of the grain rayons -- Ust'-Labinskiy, Timashevskiy and Dinskiy. The barley has been cut in windrows on the first thousands of hectares. Windrows are being picked up and thrashed.

Moscow SEL'SKAYA ZHIZN' in Russian 2 July 80 p 1 indicates the barlev harvest in Krasnodarskiy Kray is considered a general repetition of the big harvest of the main grain crop of wheat. Equipment operators will harvest almost two million hectares thereof. Everything is ready for this work.

Moscow SOVETSKAYA ROSSIYA in Russian 4 July 80 p 1 reports agricultural workers in the southern and central rayons in Krasnodarskiy Kray are conducting large scale harvesting of winter grains. Barley has been cut in windrows on 100,000 hectares. Many enterprises have already set to picking up and thrashing windrows. The barley yield exceeds an average of 30 quintals per hectare for Krasnodarskiy Kray.

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POST HARVEST CROP PROCESSING

GRAIN ELEVATOR CONSTRUCTION, RELATED TECHNIQUES DISCUSSED

Industry Overview

Moscow BETON I ZHELEZOBETON in Russian No 5, 1980 pp 2-3

[Article: "The Status and Prospects of Erecting Structures of the Grain Elevator Industry"]

[Text] Silo structures and operations buildings, which require the greatest consumption of materials, and are the most complex structures, constitute the principal portion of construction for enterprises that store and process grain. The primary materials for the load-bearing structural forms of these buildings are prefabricated and monolithic reinforced concrete and steel, of which prefabricated reinforced concrete has had the broadest application. Prefabricated reinforced concrete comprises about 80 percent of the total consumption of reinforced concrete for erecting grain elevators with a capacity of 1.2 million cubic meters per year. Monolithic reinforced concrete is principally used for the footings of structures and operations buildings (15 percent) and for walls of silos that are erected in sliding forms (5 percent). Steel structural forms are used chiefly in the framework portions of the structures above the silos and in the walls and slabs of independently standing cylindrical silos that have diameters of 15 and 18 meters.

During the past 10 years silo structures and operations buildings have primarily been erected with 3 x 3 meter grids of prefabricated reinforced concrete modular units with the usual reinforcing. More than 95 percent of all of the grain capacity is being constructed by using such structural forms. However, experience has shown that along with significant achievements in grain elevator construction--the increasing volumes of capacities that are being introduced, high labor productivity during erection and a reduction in construction time and material consumption--there are still a number of defects in this sector of construction. This relates, first of all, to the capacity structure. The universal use of silos of the same type from 3 x 3 meter block sections limits the possibilities of improving construction efficiency. Increasing the capacity of individual silos and establishing the optimum correlation of the various capacities that satisfy construction and operational requirements has important significance in this regard.

The reduced operational reliability of certain principal components in the structures is also a defect. For example, the low durability of the silos' monolithic walls is characterized by an early, intolerable appearance of cracks which leads to the necessity of capital reinforcement for the walls after a limited period of operation. This is the result of incompletely calculating the effective loads and actual operations of the structures, violating the technology of construction and deviating from designs.

Instances are noted of atmospheric condensation passing through the joints of the wall components in prefabricated silos when waterproofing measures have not been taken, which testifies to the insufficient validity of certain design approaches.

The use of prestressed structural forms to an insignificant degree, especially for the walls of silos (less than 5 percent of the total volume), remains an essential defect in current grain elevator construction. If a practically acceptable method of prestressed reinforcement for massive construction under building conditions cannot be found at the present time for monolithic concrete silos, then such methods have been worked out for prefabricated concrete silos and the matter consists only of expanding their production volume under plant conditions. An increase in the output of prestressed components does not present new problems for builders since prestressed components are interchangeable with common components.

Despite the high level of prefabrication in grain elevator structures, the use of monolithic reinforced concrete in foundations, which comprises about 15 percent, is a definite defect of them. The scattered nature of construction sites and their distance from industrial bases often makes it impossible to centrally obtain monolithic concrete and its relatively small volume makes the installation of modern on-site concrete units inadvisable. Local preparation of monolithic concrete that is of intolerably low quality for foundations is a consequence of this.

The labor consumption for erecting monolithic grain elevators is quite high and it exceeds the labor consumption for erecting prefabricated grain elevators by 2 to 3 times, which is one of the main reasons for the insignificant growth in monolithic grain elevator construction. It is necessary to sharply increase the level of mechanization in reinforcement and concrete work to provide rival capabilities and quality when constructing monolithic reinforced concrete grain elevators.

Further improvement in modular planning and structural form approaches are being directed toward optimizing the parameters and ratio of the types of silos in use, and toward improving the efficiency, operational reliability, industrialized nature and interchangeability of the structural forms. The realization of these growth trends has been prepared, to a significant degree, by a series of research, design and experimental work that has been done in recent years.

The TsNII [Central Scientific Research Institute] of Design for the Grain Industry has published instructions for designing grain elevators (SN-261-77), which are located principally in the section on grain silos, "Directions for Designing Silos," which was worked out by the TsNII of Design for the Grain Industry and by the NIIZhB [Scientific Research Institute of Reinforced Concrete] and prepared for publication by the Leningrad Industrial Construction Design Administration. A new design method for grain silos, which more completely takes into account their actual operations and the nature of effective loads and influences, is presented in the Directions, and new requirements for structural form approaches have been formulated which make it possible to significantly increase the operational reliability of silos. In particular, calculations for cylindrical silos were introduced which take into account bending moments and temperature influences, the dual reinforcement of all of their walls which are not prestressed has been recommended, the calculations for a wall's resistance to cracking has been more precisely defined by taking into account the fluctuation and alternating nature of loads, and other design and structural approaches were also introduced.

The TsNII of Design for the Grain Industry in conjunction with the VNIIZ [expansion unknown] is completing work on the ideal capacity for silos which will make it possible to establish an expedient relationship between the various capacities that form an enterprise. Obviously, other types of silos that have undergone experimental testing and have reached high levels of technology and economy will also be used along with silos from 3 x 3 meter modular units. Numbered among them are precast frames with cylindrical silos 6 meters in diameter and independently standing silos 18 meters in diameter.

Construction of steel grain silos primarily in the form of individual structures 18 meters in diameter with a capacity of up to 3 tons of grain will show significant growth during the 11th Five-Year Plan. However, the principal material for grain capacities remains reinforced concrete, the volume of which will be maintained at approximately the present level. The greatest growth in capacity will, as before, be obtained from prefabricated grain elevators, due to their considerable advantages in labor and material consumption in comparison with monolithic grain elevators. The leading scientific research and design organizations have given much attention in recent years toward improving structural form approaches to prefabricated grain elevators and toward improving their efficiency.

Components for silos from 3 x 3 meter modular units and also curved linear prestressed components for silos 6 and 18 meters in diameter that have been developed by the TsNII of Design for the Grain Industry and by NIIZhB stand out as a principally new approach. Varying in their geometric parameters, these components have a standard structural form approach and a single plant production technology.

Experimental production of the described components at plants in the Main Administration for Special Elevator Construction in the RSFSR Ministry of Rural Construction for building grain elevators in the city of Mineralnye Vody and at the Moscow milling combine No 4 and other sites has confirmed their high technological nature and has made it possible to decrease labor and steel consumption by 20 to 30 percent in comparison with analogous typical components.

The use of so-called structural form protection from moisture penetration for joints, which has been achieved by the TsNII of Design for the Grain Industry in conjunction with the Grain Elevator Construction Organization is, in essence, another important approach in developing prefabricated components for silos. The structural form protection was resolved identically for all types of components. Tests at several sites, which were performed by the TsNII of Design for the Grain Industry in conjunction with TsNIIEP [expansion unknown] of Rural Construction under laboratory and actual conditions, have shown that structural form protection of joints reliably provides for their waterproofing and its use in the exterior walls of prefabricated silos is advisable.

The construction of a silo structure with structural form protection of joints at Vyselki station in Krasnodarsk Kray.

The introduction of prefabricated foundations for the silo structures of grain elevators in Ayaguz, Kamysh Zarya and at other sites, based on designs by the TsNII of Design for the Grain Industry and the State NII of Design for the Central Asia Grain Industry, is increasing the level of prefabrication for primary grain elevator structures. The technical and economic expediency of using prefabricated foundations was demonstrated at these experimental sites which made it possible to reduce the consumption of reinforced concrete and labor for construction and to increase the volume of prefabricated reinforced concrete used practically to 100 percent. After the experiments are concluded, recommendations will be worked out for using prefabricated foundations for grain elevators under various soil conditions.

In order to reduce labor consumption and to accelerate installation the prefabricated components for silo structures are being consolidated. The TsNII of Design for the Grain Industry has developed structural forms for subsilo reinforced concrete hoppers that are combined with cornice components for structures type SKS-3 and large dimension slabs for the roofs over the silos (3 x 6 meters) of structures type SKS-6 and SKM-6. The introduction of these structural forms in 1978-1979 has already made it possible to reduce the number of fitting pieces in slabs under and over silo structures by 30 and 50 percent, respectively.

The TsNII of Design for the Grain Industry and NIIZhB have developed a structural form with curved linear prestressed components for cylindrical silos 6 meters in diameter that constitute a third of the ring. While preserving the structural features of the curved linear components that have four cuts by means of consolidating components, a reduction was achieved in the number of fitting pieces and vertical joints by 33 percent, and in the consumption of steel by 15 percent. Components in such a structural form are being used for building completely prefabricated grain elevators at Dolinskaya station in Kirovogradskaya Oblast. For the first time in grain elevator construction practice the operations building is being made up of silo structure components with cylindrical silos. Such a standardization of structural forms and interlocking buildings has made it possible to reduce the number of size types to 20 kinds. The efficiency of completely prefabricated grain elevators with cylindrical silos 6 meters in diameter is improving significantly.

Along with the practical development of new modular planning approaches, the experimental introduction of prefabricated silo structures from modular units that are efficiently planned has made it possible to reduce the consumption of materials and cost in comparison with the usual structures by 10 to 12 percent. On the basis of the results of the experimental construction the Khar'kov Grain Industry Design Administration has developed typical designs for structures with efficient planning, the application of which will yield economic results when expediently combined with the usual structures.

Speaking of prefabricated structural forms for silos, typical design 3.702-2 with prestressed fluted silos 12 meters in diameter should be noted. Their walls have joints with structural form protection and are formed from cylindrical formwork panels; then, after being joined together they are assembled in rings with a mass of up to 25 tons. Such an approach to silos is economical in comparison with silos 3 x 3 meters--the consumption of concrete was reduced to 40 percent and steel by 10 to 15 percent. Two fluted type grain elevators with a total capacity of more than 150,000 tons were built in the Moldavian SSR.

The core of a formwork casing for silo components with a diameter of 6 meters before the reinforcing has been wound on.

Improvements in the structural forms for monolithic silo structures is continuing. The Rostov and Khar'kov Grain Industry Design Administrations are working out typical designs for monolithic structures with silos 9 and 6 meters in diameter, respectively. The new recommendations for designing silos that were adopted into the Directions and which provide a significant improvement in the operational reliability of monolithic grain elevators have been taken into consideration here.

The TsNII of Design for the Grain Industry has worked out a combined sliding adjustable form for erecting monolithic walls of grain elevators. The structural form successfully combines the merits of both formwork casings. Practical testing has shown that the use of the formwork casing makes it possible to reduce labor consumption and to improve the quality of erecting monolithic walls with some reduction in the pace of construction.

Together with improving and developing structural forms and methods for erecting grain elevator structures, it is necessary to intensively adopt the structural form approaches which have been developed. It is necessary to complete series 3.702-1 of standardized components for grain elevator construction while taking into consideration all the recent favorable results of experimental construction.

The broad introduction of prestressed standardized components for silos requires the annual delivery to the grain elevator construction sector of no less than 10 ANM-3.5 reinforcement winding machines and 25,000 tons of seven-strand reinforcement cable with a diameter of 6 mm.

Interlocking structures, increasing the height of the silo's capacity, consolidating precast components, including by means of using porous clay filler concrete, developing designs for prefabricated silos with a diameter of 18 meters and increasing the level of complete prefabrication in grain elevator construction are further trends in the work to improve modular unit planning and structural form approaches for grain elevators.

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Unit, Enterprise Standardization

Moscow BETON I ZHELEZOBETON in Russian No 5,1980 pp 4-6

[Article by A. N. Prostoserdov, engineer (TsNII of Design for the Grain Industry); P. V. Chichkov, candidate of engineering sciences (TsNIIEP of Rural Construction): "Standardization of Structural Forms for Grain Elevators and Enterprises that Process Grain"]

[Text] Enterprises that store and process grain combine a large number of buildings and structures for primary and auxiliary purposes--silo structures and operations buildings of grain elevators; devices for receiving and issuing grain, raw materials and finished products; silo and ground-type warehouses; production buildings of processing enterprises (mills, shelling and mixed feed shops), administration and other buildings. The individual buildings and structures that are part of various complexes have standardized modular planning and structural-form approaches and, as a rule, are built according to typical designs. In all, more than 360 typical, repeatedly used individual designs with various structural form approaches that have 1600 types of reinforced concrete products have been used for building these structures up to recent times.

An analysis of working designs that have been completed by the TsNII of Design for the Grain Industry and the TsNIIEP of Rural Construction in collaboration with the Elevatororgstroy and Ukrorgtekhsel'stroy trusts has made it possible to reduce the number of designs that are used by one third and to work out a schedule of designs that are recommended for enterprises that store and process grain. This schedule was coordinated with USSR Gosstroy and has been adopted into practice since 1979; its adoption makes it possible to reduce the products list of reinforced concrete structural forms to 660 types and to increase the level of prefabrication in the construction of grain elevators and grain processing enterprises by 10 to 12 percent.

On the basis of the shortened schedule of designs a catalogue has been developed, which has been approved by RSFSR Gosstroy, of standardized prefabricated reinforced concrete articles and structural forms for grain elevators, mixed feed plants and other grain processing enterprises. The catalogue contains 588 items and types of products (based on series 3.702-1, II-20 and others). Similar catalogues are being worked out for construction in the Ukraine and Kazakhstan. The products list of reinforced concrete articles is even shorter in republic catalogues: for example, the catalogue for the [illegible] contains 280 items and types of reinforced concrete products in all. Work is being done to reduce the number of secondary and auxiliary buildings by means of combining them.

Requirements for the principal parameters of silo structures are presented in SNiP [Construction Standards and Specifications] II-91-77 "Industrial Enterprise Structures" and SN 261-77 "Instructions for Designing Grain Elevators, Grain Warehouses and Other Enterprises, Buildings and Structures for Processing and Storing Grain." According to this, the grid of dividing axes for the silos in the structures equals 3 x 3, 6 x 6, 9 x 9 and 12 x 12 meters, the exterior diameters of round silos comprise 6, 9, 12 and 18 meters, and the heights of the walls of the silo and the floors above and below the silo are in multiples of 0.6 meters. These parameters are assumed when developing the working series 3.702-1 of typical standardized prefabricated reinforced concrete structural forms for silo structures and operations buildings of grain elevators and enterprises that process grain (Illustration 1).

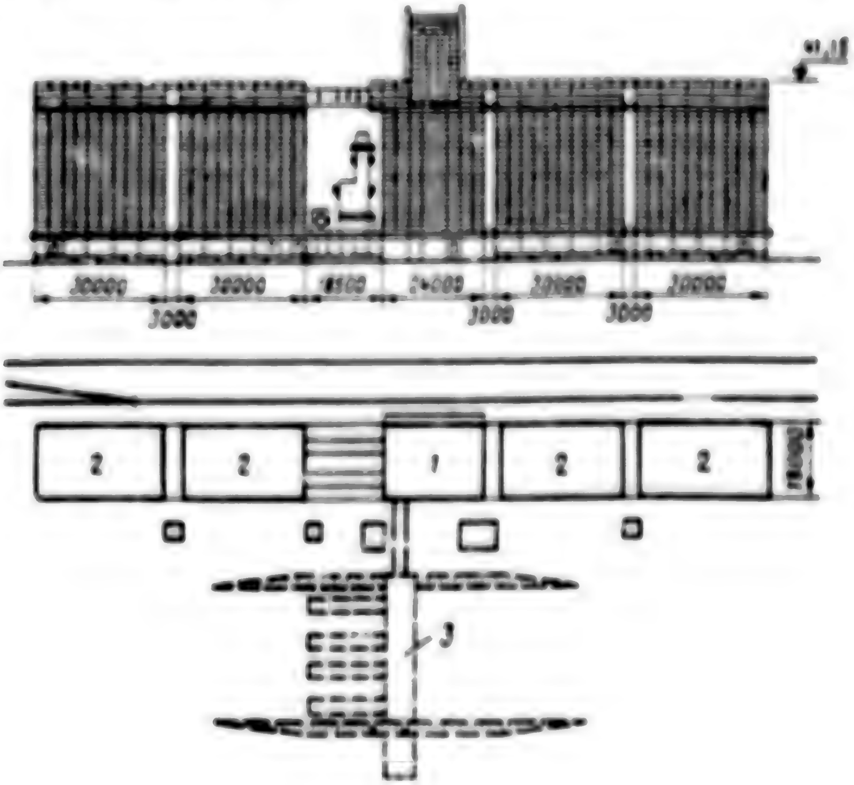


Illustration 1. Grain elevator with prefabricated structural form type LS-6 x 175-71
1--operations building; 2--prefabricated silo structures type SKS-3-60; 3--receiving device

Typical designs for structures and operations buildings of grain elevators that have silos with dimensions of 3 x 3 meters, primarily according to which construction will be carried on during the current five-year plan, are being worked out by using structural forms of the above series (Illustration 2).

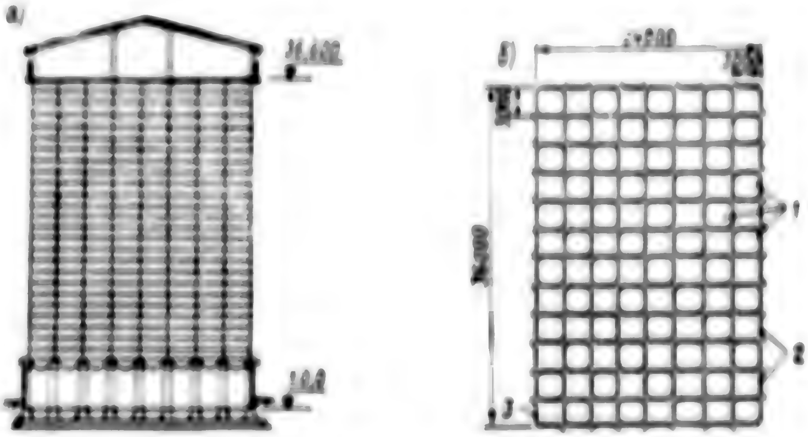


Illustration 2. Prefabricated silo structure type SKS-3-96
a--cross section; b--plan view:
1--modular units; 2--flat panels; 3--corner components

The standardized silo structures type SKS-3 have identical modular planning and structural form approaches with varying capacities (11,200, 18,000 and 27,000 tons): subsilo floors with a height of 6 meters and a column grid of 3 x 3 meters, silo walls 30 meters high and a frame floor over the silo. The footings are monolithic reinforced concrete and the rest of the structural forms are prefabricated. The silo walls are assembled from modular units with dimensions of 3 x 3 x 1.2 meters arranged in checkerboard fashion; the corner and flat components are located along the perimeter of the structure in the spaces between the modular units. The wall components are joined with each other in cement paste by bolt couplings with vertical joints bound together. Such a structural form ensures the total spatial stability of the structures and that the adjacent wall components in elevation work together.

In recent times silo structures with so-called efficient planning have been used in practice. Consolidated silos are formed in these structures from cells with a dimension of 3 x 3 meters by means of eliminating sections of wall components; the economy in prefabricated reinforced concrete reaches 5 percent. There are designs for SKS-3 type structures with increased height in the silo section up to 39.6 meters instead of 30 meters, and also with a reduced subsilo section; with this a reduction in the consumption of prefabricated reinforced concrete is also achieved for a single capacity and the compactness of the structure is increased.

The designs for operations buildings of grain elevators are being worked out on the basis of structural forms for silo structures with built-in operational quarters and superstructures over the silo that are made of steel structural forms.

In 1978 series 3.702-1 was reworked by the TsNII of Design for the Grain Industry, the TsNIIEP of Rural Construction in collaboration with NIIZhB in connection with the adoption into practice of SNiP II-21-75 and SN 261-77; products for silo walls with dimensions of 3 x 3 meters with structural form protection for the horizontal joints in the exterior walls from water permeation were included in the series. All of the products for the silo walls were standardized according to the size of the formwork casing, including the spacing of the bypass openings as well, irrespective of the type of reinforcement. Silo walls were reinforced with a consolidated curved mesh and prestressed pieces with K-7 cable or Vr-II wire (a single row for walls with a thickness of up to 100 mm), which simplifies reinforcing work and reduces the consumption of steel.

When the series was being reworked the products list for columns was expanded by means of incorporating the columns above the silos. Consolidated components were included in the series which combine the hoppers and the slabs with the cornice components, which simplifies the structural form and improves installation conditions. Prefabricated-monolithic slabs are specified for the roofs over the silos which facilitate the installation of diverse mechanical openings. Finally, grade M 300 concrete according to GOST 10180-74 is acceptable for a majority of the products instead of the same grade according to GOST 10180-67, which makes it possible to reduce cement consumption.

Use of the new series improves the quality of prefabricated reinforced concrete products for grain elevator structures, improves their operational reliability and reduces steel and cement consumption.

The standardized parameters for the structural forms of silo structures makes it possible to further improve them: experimental consolidated structural forms of modular units with dimensions of 3 x 3 x 2.4 meters and 3 x 6 x 1.2 meters and prefabricated and prefabricated-monolithic footings are being developed; the substitution of lightweight concrete for heavy concrete, structurally protected vertical joints and simplified assembly couplings are being proposed.

The experience of operating silo structures with 3 x 3 meter silos testifies to the simplicity of assembly, fine technological and economic indices for the structures, their great spatial stability, and others. However, several defects have also developed in connection with the technology of storing grain, most of all with small size silos. Therefore, structures with silos 6 and 9 meters in diameter should gradually replace structures with 3 x 3 meter silos. The standardized structural forms for subsilo floors that were established in series 3-702.1 make it possible to build silo structures with silos 6 meters in diameter from monolithic or prefabricated reinforced concrete.

On the basis of these structural forms a series of silo structures type SKM-6 with various capacities and with walls that are erected in a sliding form were developed (Illustration 3). In addition, there is a typical design for a grain elevator that has silos of the same dimensions in plan that are erected from monolithic reinforced concrete from the footings in an adjustable structural form by the TsNII of Design for the Grain Industry.

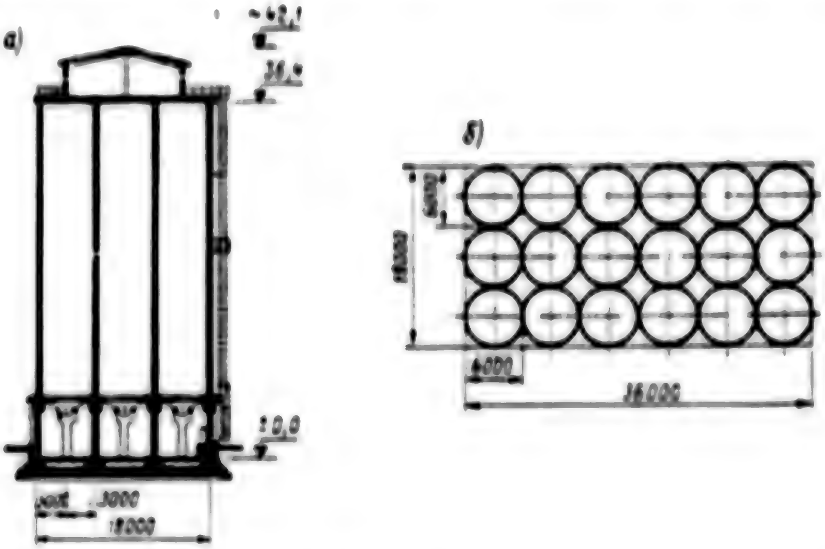


Illustration 3. Silo structure type SKM-6 of monolithic reinforced concrete a--cross section; b--plan

The use of a standardized form of this type makes it possible to eliminate many defects that are peculiar to sliding forms. The special feature of this form consists, basically, in the structural form of the corner couplings of the components by which these corner components are horizontally shifted by the movement of the primary panels of the form. The form is being tested on several structures.

An experimental test is being conducted on the structural form for the operations building of a grain elevator based on a prefabricated silo structure with silos 6 meters in diameter. The production areas in it are formed by means of special components--dual branching type columns which bear the load of the slabs in the form of collar beams and steel hoppers (the same as the subsilo bottom slabs).

There are also typical designs for silo structures with silos 9 meters in diameter from monolithic reinforced concrete, fluted type silos 12 meters in diameter from prefabricated reinforced concrete and also designs for silos 18 meters in diameter, that are undergoing experimental testing.

Warehouse structures of the silo type for processing enterprises are based on the same modular planning and structural form approaches with the exception of the subsilo portion (Illustration 4). There may be a single or several subsilo floors with a column grid of 6 x 3 meters in these structures. Structural forms in series II-20, with several alterations connected with the large loads and coupled to the silo section, are used, as a rule, for subsilo sections and also the floor above the silo. Twin typical structural forms are used in a number of designs.

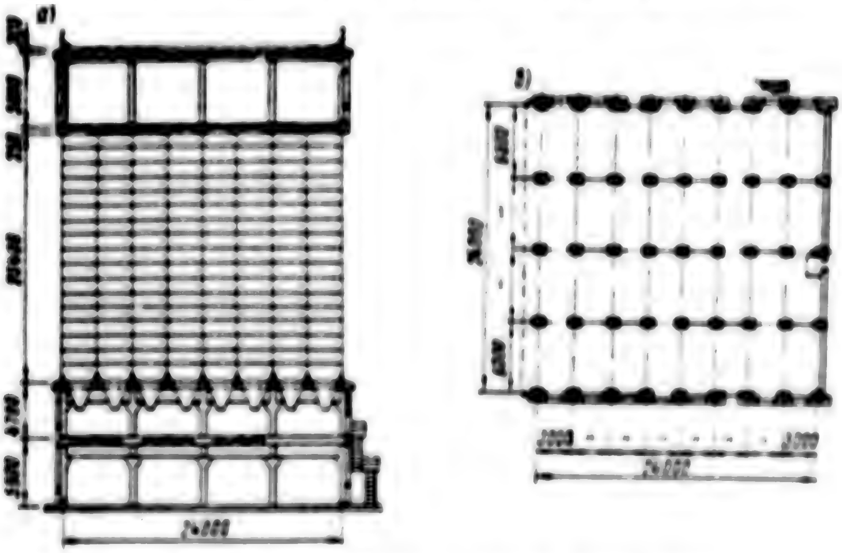
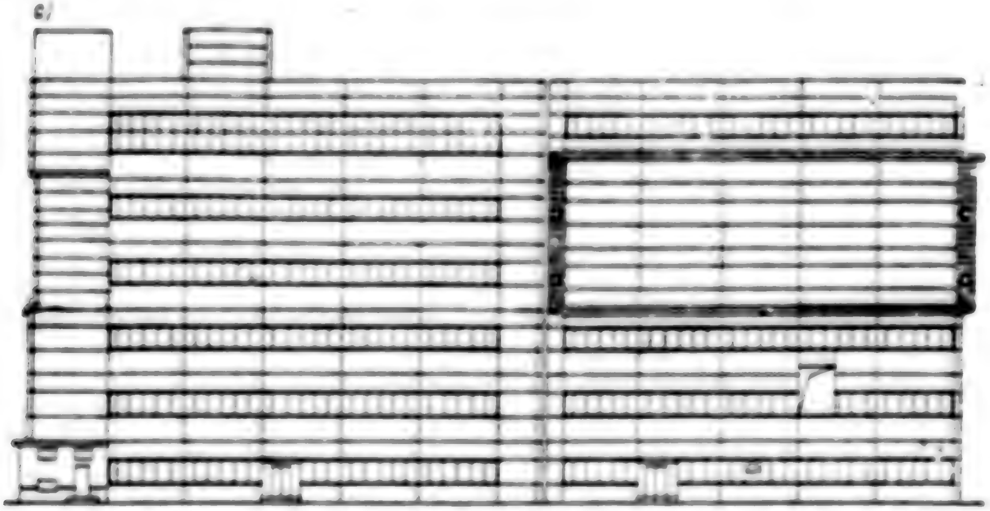


Illustration 4. Raw material building of a mixed feed shop
a--cross section; b--plan

The walls of silos for storing flour have heat insulation in the form of air tunnel passageways with steel frames (Illustration 5). The heating from the hung panels is being tested in experimental sequence.



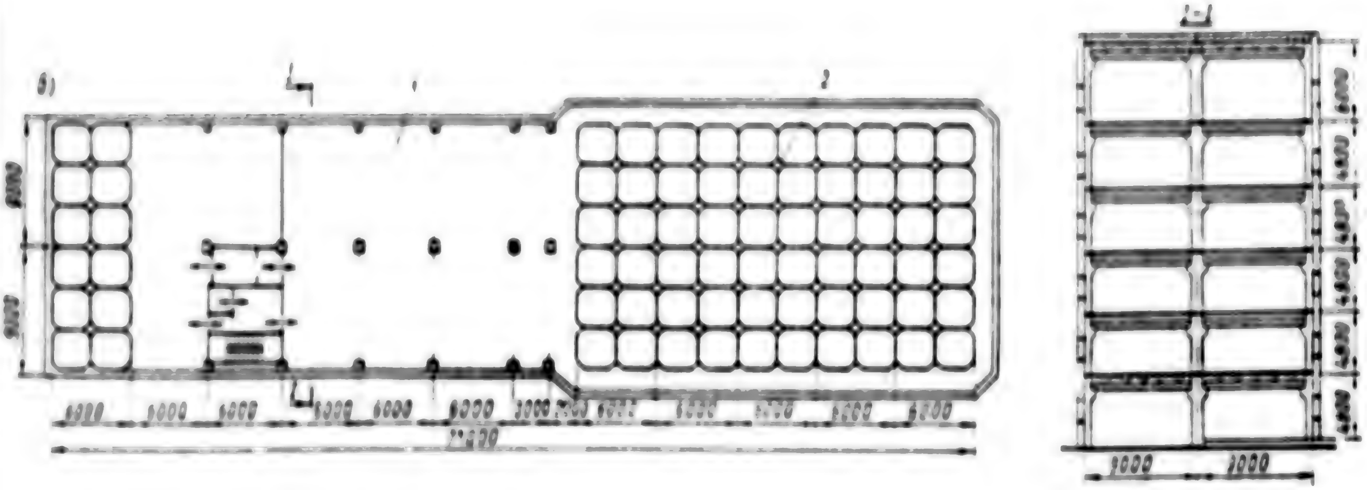


Illustration 5. A mill
a--facade; b--plan
1--production building; 2--silo warehouse for the loose storage of flour

Special plates with dimensions of 3 x 6 meters with a reduced thickness, through which mechanical openings can easily be punched, are used for the slabs in these buildings. A layer of monolithic reinforced concrete is laid over these plates and a prefabricated-monolithic structural form is formed. In the places where there are no openings the usual typical plates may be laid.

A frame of series II-20 (1.420-12) prefabricated reinforced concrete with a column grid 9 x 6 meters (mills) and 6 x 6 meters (shelling shops and mixed feed shops) is provided in production buildings. In conjunction with the fact that the buildings have a height of 7 to 8 stories, and series II-20 was developed for buildings up to five stories, the columns of the lower floors were strengthened in comparison with typical columns.

In packaged goods warehouses typical structural forms of series II-20 with 6 x 6 meter column grids are used. A monolithic reinforced concrete slab is laid over the plates of the slab in these warehouses in view of the large concentrated dynamic loads from the wheels of automated loaders.

Further industrialization of grain elevator construction, mixed feed plants, mills and other enterprises that process grain will make it possible to provide the national economy with dependable grain storehouses and efficient processing enterprises.

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9495
CSO: 1821

POST HARVEST CROP PROCESSING

BRIEFS

KHABAROVSK MIXED FEED PLANT--The foundation of the Khabarovsk mixed feed plant was laid in Khabarovsk on 22 April. The plant will produce 630 tons of products daily and will be able to supply annually 192,000 tons of high-calorie, protein balanced and fat enriched mixed feed or more than one half of all presently existing capacities in the kray. The plant will be highly mechanized and automated and will be able to produce more than 70 percent of combined fodder in a pel'etized form. [Khabarovsk Domestic Service in Russian 0930 GMT 23 Apr 80]

PROBLEMS WITH SPASSK COMBINE--Already twice the schedule for construction of the first stage of the Spassk cereal products combine has been frustrated and the situation continues to be tense since the beginning of this year. Construction workers have pledged to commission the first stage in June this year. The first stage complex includes 39 projects, including such large ones as the grain drier, 26,000-ton elevator and dozens of auxiliary facilities. Although the first quarter will soon end, there has been no progress made at the construction site. [Vladivostok Domestic Service in Russian 0930 GMT 24 Mar 80] The cereal products combine with a rated capacity of 116,000 tons has been under construction in Spassk for 5 years. Construction administration No 25 of the Promtsemstroy Trust has pledged to commission the first stage of the combine in June this year but it has failed to fulfill its pledge. This has happened because the situation has not been advantageous to it since the beginning of the year as a result of poor work organization of subcontracting organizations and not enough people assigned to the project by some other construction administrations. The construction project has also experienced difficulties as a result of poor supply of equipment. [Vladivostok Domestic Service in Russian 0930 GMT 30 Jun 80]

CSO: 1824

LIVESTOCK FEED PROCUREMENT

CREATION OF SOLID BASE OF FEED ENVISAGED

Kiev SIL'S'KI VISTI in Ukrainian 13 Jun 80 p 2

[Article entitled "For Farms with Adequate Reserves" responding to article in SIL'S'KI VISTI by Kirovgrad, Sumy, Ternopol', Voroshilovgrad, Khmelnitsa and Volyn obkoms of the Ukrainian CP; for related article see JPRS, 3 June 80, No. 1236 of this series, pp 35-37]

[Text] Under this title our paper (No. 95) published an editorial in which we addressed the shortcomings and omissions in the organization and management of the feed production in several Oblast's in our Republic.

The Secretary of Kirovgrad Party Obkom, A. Pohribnyak reported that several measures were introduced to improve the feed base and to intensify productivity, procurement and utilization of the feed.

At 284 farms there are deputy managers responsible for feed production; 192 mechanized feed production brigades, 278 detachments and 1171 teams were formed. Party groups were organized in 144 of these subunits and in 250 komsomol groups were formed with 1654 members of CPSU and 1370 komsomol members.

According to the measures developed for the 1980-1985 period, this year each hectare devoted to the feed cultures should yield at least 35 hundred weights of feed units, procurement of hay should be increased by 60 percent, that of silage by 69 percent and root product feed by 50 percent.

With this goal in mind, the acreage for perennial grasses was enlarged, reaching 42 percent of the total area of feed cultures; half of the acreage was located on irrigated fields. Additional sources for the accumulation of feed reserves have been proposed, to include more compact, repetitive seeding, the utilization of sugar beet tops, corn stalks, sunflower baskets, etc. To improve the quality of feed, most of it is prepared by progressive methods. To increase the protein content in animal allowance, soy beans were to be used; the acreage for sov beans was increased to 8000 hectares, from which 6000 was to be cultivated by progressive technology.

The increase in the productivity of root product feed will insure utilization of improved, highly productive hybrids of the feed beets grown by the technology developed for sugar beets.

To assure adequate storage of feed, during this year silo and hay storage facilities will be constructed with the volume of about 400,000 cubic meters. The plans call for each farm to equip feed preparation facilities by the end of this year, so that complete reprocessing and preparation of the feed could be handled.

The Party, the Soviet and the agricultural organs of Sumy region took additional measures to improve the situation concerning perennial grasses. This year, they will seed 118,000 hectares, noted the secretary of the Party Obkom, M. Ol'shans'kyy; the specific weight in the structure of feed cultures will reach 40 percent.

A program was developed for each farm to create a firm feed base during the 1980-1985 period. In 228 cases, a position of a kolkhoz chairman deputy for feed production was created; 385 feed production brigades have been formed. There are 850 mechanized teams growing corn for the ensilage.

According to the report of the first secretary of Ternopol' Party Obkom, I. Yarkovyy, supreme effort is exerted in the oblast' to increase the productivity of feed cultures this year--especially the productivity of root products--in order to provide 40 hundred weights of feed units per conditional head of cattle. Mechanized feed production brigades and teams headed by farm deputy managers for the feed production will assure the growing and harvesting of these cultures, as well as organization of winter feed reserves in kolkhozes and sovkhozes.

The secretary of the Voroshilovgradskaya Oblast Party Obkom, L. Romanenko writes that, following the good example of Vinnitsa, they developed prospective plans for their oblast to increase the productivity and to improve the quality of feed. While the plan called for 496,000 hectares to be seeded with perennial grass, a 530,000-hectare area was covered in their kolkhozes and sovkhozes. The total area seeded this year will exceed 127,000 hectares, when the entire tilled area is included.

To increase the yield of feed, the oblast allocated 30 tons of organic and more than three hundred weights of mineral fertilizers per hectare of feed beets; along with the seeds, one-half of a hundred weight of mineral fertilizers was added to the rows. In the case of corn for feed and silage, 13 tons of organic fertilizer was added in the autumn and an additional one-half of a hundred weight of mineral fertilizer during the sowing period. Increased productivity will make it possible to provide 35 hundred weights of feed units per conditional cattle head.

The manager of the agriculture branch of Khmelnitskiy Party Obkom, M. Rudyuk reported about their measures taken to correct the deficiencies noted in the editorial. The area assigned to perennial grasses was enlarged by more than 13,000 hectares, surpassing the planned goal for their planting. The areas under feed grain cultures and that under mixtures with high protein content were also enlarged. The area used for seeding post-hay harvest time and post grain harvesting cultures are larger than in any previous years.

At this time all of the organizational and mass-political efforts of the Party organizations and of the Soviet and farm organs is aimed at increasing the productivity of feed cultures to the level of 38-40 hundred weights of feed units per hectare, providing at least 36-37 hundred weights per conditional cattle head.

In Volyn', reported the manager of the agricultural branch of the Party Obkom, V. Nevmerzhyts'kyy, the seeding of perennial grasses was increased by 33,000 hectares in comparison to last year, while corn acreage increased by 30,000 hectares.

The plans call for provision of 130,000 tons of wild growing grasses, 20,000 tons of after-grass, 400,000 tons of beet greens and 280,000 tons of potato leaves. All of this feed provision is performed by 292 collection-transportation teams, including 50 inter-farm and 162 mechanized teams.

7813
CSO: 1811

REGIONAL DEVELOPMENT

BRIEFS

RECLAMATION WORKERS, RICE GROWERS--Moscow SEL'SKAYA ZHIZN' in Russian 19 July 80 p 1 indicates reclamation workers in Primorye are transforming the Prikhankayskaya Lowland at a fast pace. They have put a new irrigation system into operation half a year ahead of schedule. A thousand hectares of check plots, equipped with a complex system of canals and hydrotechnical installations will be sown to rice next year. The technical irrigation systems are being equipped according to the latest scientific and technical advances. The reclamation workers have resolved to give about another thousand hectares of irrigated land over to the rice growers of Primorye prior to the twenty-sixth CPSU Congress. The rice area in Primorskiy Kray will amount to 50,000 hectares in 1981. [Editorial Report]

PRIMORYE LAND IRRIGATION--A meeting of the party and economy aktiv of enterprises and organizations of the Glavdalvodstroy administrations has been held in Vladivostok. It was reported that in 1979 the administration's workers brought nearly 8,000 hectares of irrigated land into use, including 4,160 hectares for rice planting. Viktor Pavlovich Lomakin, Primorskiy Kraykom first secretary, and Ivan Fedorovich Boyko, Collegium member of the USSR Ministry of Land Reclamation and Water Resources, participated in the meeting. [Vladivostok Domestic Service in Russian 0930 GMT 22 Feb 80]

PRIMORYE RICE SOVKHOZ--Land reclamation workers of the Lesozavodskvodstroy Trust are presently building dams, carrying out land drainage work, and building the 100-kilometer main canal for the future Novorusanovskiy rice sovkhoz. A modern settlement is to be built as well as rice fields which will total 7,500 hectares. The trust is also working on Pozharskiy, Dalnerechenskiy, Kirovskiy, and Kavalerovskiy rayons where by the end of 1980, 3,500 hectares of drained land and 810 hectares of irrigated land will be commissioned. The trust has recently been supplemented with the Kirovskiy mobile mechanized columns Nos 63 and 29 and the construction materials combine which is producing reinforced concrete components for land reclamation work. This has increased the trust's annual construction and installation work capacity from 9 to 13 million rubles. New rice sovkhozes will be built during the next 5-year plan period which will increase the area sown to rice by 35,000 hectares. [Vladivostok Domestic Service in Russian 0930 GMT 21 Apr 80]

CSO: 1824

AGRO-ECONOMICS AND ORGANIZATION

BRIEFS

SUBSIDIARY ENTERPRISE DEVELOPMENT--Moscow PRAVDA in Russian on 9 June 1980 on page 2 publishes a 2,200-word economic review by Ivan Sharov under the heading "From the Factory Vegetable Garden" emphasizing the importance of factories' auxiliary vegetable plots and meat and dairy farms less in terms of financial profit than of "the heightened labor activeness of collectives responding to concern for them." Having described various auxiliary farms' successes, Sharov goes on to note that hydroelectric power stations could have auxiliary fish farms and that all auxiliary farms need help in acquiring the necessary material and technical resources. Finally, Sharov complains that some ministries are failing to devote sufficient attention to the development of auxiliary farms. [LD170755 Editorial Report]

CSO: 1824

TILLING AND CROPPING TECHNOLOGY

GRAIN CROP DEVELOPMENT IN WESTERN SIBERIA, TRANS-URALS

Moscow SEL'SKOYE KHOZYAYSTVO ROSSII in Russian No 6, Jun 80 pp 31-33

[Article by N. Milashchenko, corresponding member of VASKhNIL and director of the Siberian Scientific Research Institute for Agriculture (SIBNIISHOZ), in the section "Specialist, Technology, Production": "The Potential for Grain Production in Siberia and the Trans-Urals"]

[Text] Western Siberia, Kurganskaya and Chelyabinskaya Oblasts represent the primary food supply base in the eastern rayons of the country, where it is envisioned that industry be developed at an accelerated pace. Therefore, particular responsibility for the creation of a reliable food base is placed on this region.

The problem of intensifying agricultural production in this zone is connected primarily with the need to improve the productivity of crops and arable land, the latter totalling 25 million hectares in this region. Output during the 10th Five-Year Plan has been extremeley low in the majority of rayons: 10-12 quintals of feed units per hectare. If we are to carry out the tasks assigned us by the party and government, it is essential that we raise output to 18-20 quintals of feed units and reap 17-20 quintals of grain per hectare.

Is this realistic? Scientists at the SIBNIISKHOZ and at other scientific institutes answer this question firmly: Yes, it is! The indicators achieved at experimental farms provide vivid testimony to the production efficiency of the zonal agrocomplexes which have been developed; they ensure that the planned productivity for arable land is attained. The mean productivity of cereal crops over 4 years of the 10th Five-Year Plan came to 22.6 quintals per hectare. The per hectare productivity of arable land rose to 19.6 quintals of feed units, including 11.8 quintals of grain.

Today practically every natural zone has its standards for stable farming. The production efficiency of the complex of agrotechnical methods recommended for the steppe zone has been fully tested at the "Novoural'skoye" experimental farm. Despite conditions of drought here the yield of cereal crops was 20.6 quintals per hectare in 1976, 20.1 quintals in 1977 and 1978, and 23.7 quintals in 1979. Grain production per hectare of arable land was 11.8 quintals, and overall productivity increased to 19.7 quintals of feed units.

The zonal agrocomplexes developed at SIBNIISKHOZ are recommended by the scientific-technical council of the RSFSR Ministry of Agriculture for broad testing of production and for implementation inOmskaya, Novosibirskaya, Kemerovskaya, and Tomskaya Oblasts. In the near future they should become the property of most sovkhozes and kolkhozes in Western Siberia and the Trans-Urals.

At the current stage in the development of Siberian agriculture universal rotation of crops with clean fallow will be of decisive importance in increasing grain production and raising the productivity of arable land. It has long been known that such crop rotation is highly effective in Siberia. This also confirms the long experience of the major specialist on Siberian agriculture, T. S. Mal'tsev.

Clean fallow largely solves the problem of providing the plants with nitrogen. With such crop rotation the crops' root system develops more powerfully, and this increases the output coefficient of the phosphorus reserves in the soil and of the fertilizer used.

On the whole, only about half as much fertilizer is required to produce 10 quintals of grain per hectare of arable land when rotating crops with clean fallow as when not doing so. Besides, a basis is thus established for the effective use of progressive soil protection technology in crop raising, based on flat-cut and minimal tillage of the soil.

In the last few years Siberian breeders have proposed that a number of new, intensive strains of crops be introduced, ones which meet the demands for sturdy grain. But they require good soil background conditions, which can only be achieved when crops are rotated with clean fallow.

Clean fallow--with the correct sequence of crops and tillage--significantly decreases the effect of droughts on the harvest, rids the fields of weeds, and permits the production of grain and feed to become stable. The negligent attitude of a number of Siberian oblasts during the 10th Five-Year Plan is, in this regard, the main reason for a reduction in the average productivity of cereal crops and a drop in the productivity of arable land.

The experience of farms in Muromtsevskiy Rayon, Omskaya Oblast, attests to the effectiveness of rotating crops with clean fallow. In the past few years the amount of land lying fallow there has been expanded to the scientifically established size. And the result? Average cereal productivity in the rayon rose to 16.3 quintals for the period 1976-1979, compared to 8.3 in the period 139-1970, and the yield of grain per hectare of arable land reached 8.4 quintals, an increase of 53 percent. For the past 2 years the rayon has been producing about a ton of grain per hectare of arable land.

Over the last 9 years this rayon's "Kop'yevskiy" sovkhoz--which has more fertile soil than the average--has achieved a mean yield of 10.7 quintals of grain per hectare of arable land; cereal crop productivity has been 20.7 quintals. It attained these results by introducing a rotation of crops with clean fallow.

It is characteristic of Siberia that plant remains and organic matter in the soil decompose at a reduced rate because of a lack of moisture in the summer and poor heating of the tillable layer in the spring and fall. As a rule, there is only enough nitrogen, which the cereal crops acquire through the activity of nitrifying bacteria, to support the growth of 8-12 quintals per hectare. This is confirmed in experiments using single-crop eared grains without fertilizer and by the practice of farming without the use of fallow. Fallow permits acceleration of the nitrogen cycle in the soil. It is a natural workshop for the production and accumulation of nitrogen fertilizer.

Given the level of development achieved in the chemical industry and in farming, in order to provide the cereal crops with nitrogen and have a stable productivity level of 17-20 quintals per hectare, it is essential to allow 18-20 percent of the arable land in the steppe to lie fallow. In the moister rayons the area of fallow can be reduced, but we absolutely must compensate for this reduction by using organic and mineral nitrogen fertilizers and by expanding the area planted with pulse crops.

According to data derived from agrochemical investigations the plants on half of the arable land in Siberia are provided with medium, small, or very small amounts of the available phosphorus. If we balance plant nourishment in fallow land by introducing phosphorus fertilizer and sowing intensive, non-lodging strains of spring wheat--such as Omskaya 9, Novosibirskaya 67, or Vera, for example--then the harvest will increase to 30 quintals and more. On many plots where certain strains are sown and on the advanced farms yields of 35-50 quintals are already being achieved.

It is essential to compensate for phosphorus depletion of the soil caused by the harvest, taking into account its coefficient of use. About 35-45 kg of P_2O_5 or 2 quintals of standard fertilizer are required to achieve an average productivity of 20 quintals of feed units per hectare of arable land.

In 1980 all the fallow land intended for use with cereal crops must definitely be fertilized with phosphorus, using the most effective techniques for dispensing it: locally and onto the rows while sowing. One quintal of standard fertilizer spread on fallow land guarantees an additional harvest of 2-3 quintals of grain per hectare.

In all zones organic fertilizers are of exceptional importance for increasing the productivity of cereal crops. However, the technology involved in its storage and use still remains unmastered at the majority of our kolkhozes and sovkhozes. It is essential to observe strict technological discipline if we are to put this matter in order.

Across all of Western Siberia and the Trans-Urals a complex of measures is being employed to accumulate and maintain moisture in the soil. It includes a system for smooth-cut and minimal tillage of the soil, keeping the stubble on the surface to cause snow to accumulate and to retain additional snow on the fields. The cultivation of crops that serve as windbreakers permits water reserves in the top meter of soil to increase significantly.

Measures to promote moisture accumulation are complemented by special methods to prevent water runoff and soil erosion in areas where water erosion or joint water and wind erosion is a problem. They include deep, unburrowed hoeing across the slope, contour tillage, slitting of the soil, the dispensing of straw, and so forth.

On many farms it takes a total expenditure of 15-20 mm of precipitation and soil moisture to grow a quintal of grain. Today this figure can be reduced to 10-12, which has actually been done at most experimental farms thanks to balanced plant nourishment and success in the struggle with disease and weeds.

Under Siberian conditions, for subsequent sowings of wheat (or barley) on wheat, fungal infection accumulates in the soil because of the slow decomposition of plant remains. This infection causes disease in the root system of grain crops. According to research data gathered by the Siberian Scientific Research Institute of Chemistry and the Kemerovskaya Experimental Agricultural Station the losses inflicted on the cereal harvest by root rot amount to 3-7 percent of the plants sown in clean fallow and increase to 25 percent in subsequent sowings of wheat over the course of the next 4 years. One radical method for combatting this disease is crop rotation, wherein spring wheat is sequenced with clean fallow, barley, grain pods, and corn.

At farms where no attention is paid to the mastering of clean fallow crop rotation the fields have had a higher weed level and, as a rule, the farms have lost 1/3 of their harvest. The overall weed level of the crops 3-4 times after properly conducted tillage of fallow; for perennials the level drops by 10-15 times. Depending on the composition of the weeds by species and the weed level, and also taking into account the actual placement of spring wheat vis-a-vis the the preceding crop, 40-50 percent of the sowings should be sprayed with herbicides each year. An increase of 1.5 to 2 quintals of harvest per hectare is guaranteed if these areas are treated with 2,4-DA.

The harvest level depends largely on the times when this field work is done and on the observance of technological discipline. In order to better prepare the fields for sowing it is recommended that all the stubble crops in the steppe--and in the Chernozem soils of the forested steppe too--be tilled early in the spring. This will permit a significant improvement in the provision of nitrogen to the crops. The operation is performed using a BIG-3 harrow or a shallow plough with flat discs in combination with a ring roller. The SZS-2.1 sowing machine can also be used for tilling, which should be accompanied by concurrent local application of granulated superphosphate.

soils in the Chernozem-alkaline complex, grey forest and podzol soils of the forested steppe, and fields in the sub-taiga and taiga which were not ploughed in the fall are tilled to a depth of 16-18 cm. Concurrently the soil is harrowed and packed with ring rollers.

Under conditions of drought in the first half of the summer--which is characteristic of Western Siberia and the Trans-Urals--it is very important to abide by the optimal seeding rates. In years with a dry June dense sowings burn out extensively, and summer rains cannot correct the situation. That is why in Omskaya Oblast, for example, the seeding rate recommended earlier for Western Siberia was reduced somewhat. But a reduction is possible only where agricultural standards are high, where the fields are properly prepared, and where every seeding mechanism in the sowing machines is adjusted.

The introduction of the best, most highly productive strains of grain--ones which have been adapted to local conditions--is an effective reserve for increasing grain production. Scientists' observations and the experience of farming in Siberia indicate that the natural resources of the steppe and forested steppe can be most fully exploited to achieve large and stable harvests when the farms cultivate not fewer than 2 strains of spring wheat, differing in their biological characteristics. One of them should be of the intensive type, for sowing in fallow and other good soil backgrounds; the other--more drought-resistant and less demanding of fertile soil, for cultivation in other than fallow fields.

A qualitatively new period in seed production has now arrived--the transition to a more frequent change in seed strain, which is to occur at least once each 5-7 years. However, new strains are being introduced extremely slowly. It takes 5-8 years--and sometimes longer--to do so, and because of that we do not get a large quantity of grain. A new program for the accelerated introduction of new strains will permit the situation to be corrected; seed reproduction for the strains will begin 5-6 years before zoning occurs. Seventy base and supporting farms have been set up in the 13 oblasts of the region to accomplish broad testing of the new strains' productivity.

Western Siberia and the Trans-Urals possess significant potential to increase the production of high-quality grain. Our institute has developed an efficient system for the discovery, development, and sale to the state of high-quality batches of wheat. Thanks to the introduction of this system the production of sturdy grain in Omskaya Oblast, for example, rose from 100 tons in 1974 to 370 thousand tons last year. For comparison let me cite these figures: In 1978 Novosibirskaya Oblast took in but 4 thousand tons of sturdy grain, and Altayskiy Kray--only 3. None of the other West Siberian oblasts produce it at all.

Scientists at our institute are now confronted with new tasks. They have focused their attention on improving the zonal agrocomplexes. Specifically, they will work on achieving the next level of productivity for a hectare of arable land: 22 quintals of feed units, including 12 quintals of grain.

The grain growers in Omskaya Oblast are diligently introducing the agrocomplexes that we have developed. Their efforts, combined with measures to strengthen the material and technical base of the kolkhozes and sovkhozes, have permitted us to achieve significant growth in grain production. Whereas an average of 1.8 million tons per year was produced during the 7th Five-Year Plan, that level was 3 million tons during the 9th Five-Year Plan and 3.44 million tons during the 10th. The experience of the advanced farm collectives indicates that significant reserves are available to increase the production efficiency and stability of grain production.

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TILLING AND CROPPING TECHNOLOGY

UDC 631.1:621.3

USE OF COMPUTER TECHNOLOGY FOR FORECASTING CROPS

Moscow SEL'SKOYE KHOZYAYSTVO ROSSII in Russian No 6, Jun 80 pp 17-1

[Article by V. Yermakov, deputy chief of Main Planning and Economic Administration of RSFSR Ministry of Agriculture: "Electronic Computer Forecast"]

[Text] Of all branches of the national economy, agriculture is especially dependent upon agroclimatic factors. Thus, great importance is attached to forecasting production, which makes it possible to lower considerably the consequences of unfavorable natural phenomena. The use of forecasts has gradually increased in recent years, with improvements being realized in the methods employed for preparing them. The methods used for short-term forecasting are based upon operational and statistical information and they make it possible, up to a period of 1.5-2 months and more prior to the end of the harvest operations and with a high degree of accuracy, to determine the anticipated cropping power, calculate the gross yield and redistribute the labor and logistical resources, when necessary, to prepare additional storage facilities and to organize in a more intense manner an operational regime for the procurement and processing enterprises.

For example, the forecasting of a sugar beet crop is carried out based upon plant density per hectare and root and haulm bulk. The essence of the computation consists of calculating the average biological cropping power for the past 5 years for a particular date, for example 20 August. The average actual cropping power for these same years is computed based upon CSA data. The coefficient of cropping power will be the ratio of the first indicator to the second. How this computation varies by periods is clearly shown in Table 1.

Subsequently the biological cropping power is determined for this same date of the corresponding year. And since all of the principal factors (fertilizers, predecessor crops, quality of sowing, tending of crops and so forth) are for all practical purposes embodied in it, the coefficient obtained for the previous five-year plan should be divided into it in order to obtain the expected sugar beet cropping power per hectare and thereafter the gross yield (see Table 2).

Table 1

Indicator	Average for Years:			
	1971-1975	1972-1976	1973-1977	1974-1978
Root mass, in grams	261.5	275.7	295.6	285.4
Number of plants per hectare, in thousands of units	65.9	66.2	67.0	67.6
Biological cropping power, in quintals per hectare	172.3	182.5	198.1	193.2
Actual cropping power, in quintals per hectare	141.8	149.4	164.4	154.4
Coefficient of cropping power	1.215	1.222	1.227	1.251

Table 2

Indicator	1976	1977	1978	1979	Average for 1976-1979 Period
Root mass, in grams	301	308	273	255	284
Number of plants per hectare, in thousands of units	70	70	70	63	68.3
Biological cropping power, in quintals per hectare	210.7	215.6	191.1	160.6	194.0
Coefficient of cropping power	1.215	1.222	1.227	1.251	
Expected cropping power, in quintals per hectare	173.4	176.4	155.7	128.4	158.5
Expected gross yield, in thousands of tons	27964	28720	25197	20666	25637

This is by no means an ideal computational method; its accuracy can be affected by the haulm bulk for the given period, by a possible increase in root bulk following the computational period, by the degree of readiness for the harvest operations and by many other factors. Nevertheless it is sufficiently accurate. According to CSA data, over the past 4 years the average gross yield for sugar beets in the RSFSR was 25.74 million tons and the forecast amount -- 25,63 million tons. Thus the difference was only 0.4 percent.

A refinement in the expected yield of sugar beets is made at the commencement of the harvest based upon the accumulation of roots per hectare. The computational method is roughly the same, but instead of the biological cropping power use is made of the actual accumulation on the particular data of the appropriate period and based upon operational CSA data.

Quite often the leaders and specialists attached to kolkhozes, sovkhozes and agricultural organs, during the course of evaluating a harvest, tolerate considerable miscalculations and in this manner they tend to disorient the industrial enterprises.

This same method can be used for computing the cropping power and gross yield for sugar beets on a long term basis. In particular, the computations reveal that in order to obtain the planned production volume for sugar beets this year there must be a minimum of 61,700-62,000 plants per hectare of sowing and an average root mass of no less than 300 grams by 20 August. And during the next few years these indicators must be raised to 65,000 and 310 grams respectively. Only if this is done will it be possible to solve the established tasks with regard to further increasing sugar beet production.

It is difficult to exaggerate the importance of computing the expected feed balance. Electronic computers can also be of assistance in this regard. Practical workers are familiar with the operational report of the CSA entitled "Mowing of Hay and Feed Procurement," which can serve as the basis for determining the expected procurements of hay and haylage. The essence of this method also consists of information being collected by a computer center for several years. The coefficient of cropping power, in a calculation for hay, is computed for a definite date (best when all farms, rayons or oblasts are commencing their hay mowing work). The gross yield of feed is converted to hay and in accordance with the areas actually harvested for this purpose the average cropping power for a period of many years is computed for a definite date. For these same years, use is made of CSA data on actual cropping power at the end of the year. The sought after coefficient will be the ratio of the first to the second.

Having obtained data on the mowing of hay on 25 July of this year, for example, and having computed the cropping power for this date in a conversion for hay and using the coefficient, we can determine the expected cropping power for the end of the year. In addition, one must take into account the correction factors (computed area of hay mowing, proportion of hay or haylage in a conversion for hay and a number of other planning indicators). For example, the output information for forecasting hay-mowing appears as shown in Table 3, hay and haylage procurement during the 1974-1979 period -- Table 4, and for 1980 -- Table 5.

As can be seen in Table 4, the accumulated information made it possible to carry out a computation for the date under consideration and for the end of the year, in a computation for hay. In addition to describing the course of the hay mowing work, all of the indicators here also serve as initial material for subsequent computation of the cropping power of the hay and haylage for the date under consideration and for a forecast for the end of the year (see Table 6).

The coefficient of cropping power shown in the ninth column of Table 3 is the result of the ratio of cropping power, in a conversion for hay for the date under consideration, to the overall cropping power for the 1974-1979 period (see Table 6, columns 2 and 3).

Table 3

Oblast, Rayon, Farm	Mowing Area for Hay and Haylage, thousands of hectares							
	Aver. for 1974-1979			1980			Computed Area of Hay-mowing	Coeff. of Product.
	Plan	Report	% of Plan	Plan	Mowed by Reporting Date	% of Plan		
1	2	3	4	5	6	7	8	9

Table 4

Oblast, Rayon, Farm	Average Hay and Haylage Procurements During 1974-1979 Period							
	Hay		Haylage				Hay & Haylage in a Computation for Hay	
			Actual Measurement		In a Computation for Hay			
	By Report Date	By End of Year	By Report Date	By End of Year	By Report Date	By End of Year	By Report Date	By End of Year
1	2	3	4	5	6	7	8	9

Using this coefficient in conformity with the cropping power for the appropriate date, we obtain the expected and corresponding indicator for the end of the year. Subsequently, a forecast is determined for the gross yield in a computation for hay and according to the proportion of hay and haylage in past years -- initially, the volumes in a computation for hay and thereafter -- haylage in a natural computation.

In order to make the forecast more accurate, similar computations for feed production can be carried out by analogue-years for the first period of hay-mowing.

As yet, the planning and agricultural organs are still not making sufficient use of electronic computing equipment for carrying out their planning and forecasting computations. The use of such equipment will be of assistance in developing a more objective approach for preparing equally tense and balanced plans and for eliminating those incidents of subjectivism which are still taking place.

The following phrases are still being overheard from time to time: "a scientifically sound structure" and "on a scientific basis." True, we have faith in our science and we are doing everything possible to ensure the implementation of scientific ideas and recommendations. But quite often a scientifically sound idea is not sufficiently scientific. For example, which is more important for agricultural development -- excessive production

Table 5

Oblast, Rayon, Farm	Information for 1980 Date, in thousands of tons							
	Hay			Haylage				Hay and Haylage in a Computation for Hay
				Actual Measurement			In a Computation For Hay	
	Plan	Procured	% of Plan	Plan	Procured	% of Plan		
1	2	3	4	5	6	7	8	9

Table 6

Oblast, Rayon, Farm	Cropping Power in Computation for Hay, quintals per hectare				1980 Gross Yield Forecast, in thousands of tons			
	Average for 1974-1979		1980		Hay and Haylage in a Computation for Hay	Proportion of Hay for 1974-1979 Period	Including	
	By Report Date	By End of Year	By Report Date	By End of Year			Hay	Haylage in a Computation for Hay
1	2	3	4	5	6	7	8	9

of farming products in terms of feed units or in terms of protein? The following expression has made an appearance: "Improvements in the structure of the area under crops by sowing more highly productive crops." Here we have in mind an increase in production achieved mainly by means of barley and oats. And if we examine closely the essence of this problem, then it turns out that in a number of oblasts and during the past few years there has been a noticeable reduction in the proportion of high protein crops cultivated on arable land and also a lowering of the value of a feed unit in terms of protein. This inhibits the full-ration feeding of livestock and it restrains growth in the production of animal husbandry products.

Thus electronic computer equipment can be of assistance in uncovering and preventing undesirable trends in agricultural production.

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TILLING AND CROPPING TECHNOLOGY

FORMATION OF WINTER RYE HYBRIDS DISCUSSED

Kiev SIL'S'KI VISTI in Ukrainian 18 Jun 80 p 2

[Article: "Grain Field Reserves"]

[Text] SIL'S'KI VISTI (Nos. 48,49) published the article "Rye Spike" in the section on "Grain Field Reserves." This article discussed the reasons for the delays in supplying the agriculture with rye hybrids, and the methods used for correcting this situation. Several letters to the editor were received in response to this article.

"The article correctly points out the inadequate effort in rye hybridization," states the chairman of the Southern Branch of All Union Academy of Agricultural Sciences imeni Lenin, G. Bogdanov. "Our branch, specifically the Kharkov, Myroniv and Kiev Breeding Centers and the Scientific Research Institutes, are actively trying to improve the hybridization process. This effort has been expanded in the Ukrainian Scientific Research Institute of Plant Growing, Breeding and Genetics imeni V. Ya. Yur'yev. This Institute was authorized to coordinate all of the rye hybridization effort in the Republic. The Kiev Breeding Center of Fodder Cultures was converted to the Breeding Center of Grain and Fodder Cultures, which should have a positive influence on hybridization of winter rye. To improve the work at the Institutes and experimental stations, special sections of primary and select seed production were organized, lowering the workload of the breeders and giving them an opportunity to develop highly productive and resistant brands."

Ukrainian SSR Deputy Minister of Agriculture O. Denysenko wrote to the editor that, in order to improve the results of rye hybridization during the 1981-1990 decade, a coordinated workplan was developed with designated directions and parameters based on principal indices; the scientific and technical cadres working with the rye hybridization groups have been practically doubled. The breeding staff and laboratory technicians were enrolled in technical courses and seminars, the interaction between breeders and phytopathologists, enthomologists and biochemists was intensified. The scope and variety of the starting and selected material was enlarged substantially. Efforts were underway to fortify the material and technical base for ear formers. A breeding complex was built at the Scientific Research Institute of Agriculture in the Nonchernozem Zone of the Ukrainian SSR, its construction at the Volyn' Experimental Station is nearing completion. Next year a breeding complex will be constructed at the Chernigov Experimental Station

From Chernigov responses came from the manager of the Agriculture Department of the Ukrainian CP Obkom, H. Dolzhenko and from the Director of Oblast' Agricultural Experimental Station, V. Kovin'ko. They report that the paper is correct in bringing up the need to pay more attention to the production of an important grain culture--the winter rye. At the Nosiv Branch of the Experimental Station, a scientist was added to the staff working on rye hybridization, with the reponsibility for plant protection; as a result, work has been initiated to develop a disease-resistant starting material for the culture. To improve the work conditions of breeders, proper equipment was provided: a small tractor with a set of tools, a seeder, a drier, a sheaf thresher, etc.

The article was also discussed at the scientific session of Ukrainian Scientific Research Institute of Agriculture, as reported by the acting Director, A. Reznik. To increase the effectiveness in rye breeding at the Institute and to improve work coordination at the Kiev Breeding Center in development of new brands, it was decided to organize a laboratory for breeding winter rye, funded by allocations for miscellaneous subjects. To organize such a laboratory, the rye breeders were reinforced by two individuals. Hoping to intensify research on ear formers provisions were made for collaboration with laboratories of plant production, plant biochemistry and mass analysis; this should have made it possible to develop disease-resistant brands of high grain quality.

What was done at the Ukrainian Scientific Research Institute of Vegetable Production, Breeding and Genetics imeni V. Ya. Yur'yev after the appearance of this article? The answer comes from the Director of the Institute, B. Gur'yev. He writes: "Our plans call for intensified hybridization effort with the goal of converting better local and foreign brands to the short stem base. Improved breeding methods have been developed and are being introduced at the working level. Seeds of a short stem brand 'Kharkivs'ke-78,' developed in the Institute, were distributed to 86 sections. This brand is highly resistant to falling. At the same time, this brand was seeded in a production trial, the primary seed production was expanded on a large scale. Complex research programs were developed with East Germany and neighboring institute laboratories on immunity, winter stability, grain quality, genetics and brand agrotechnology. Additional transportation was assigned to the laboratory of rye breeding to cover isolated sections."

Several measures were also developed at the Scientific Research Institute of the Agriculture of Nonchernozem Zone of the Ukrainian SSR, as reported by Deputy Director O. Smahliy and Senior Scientist V. Klimov. Here the culture hybridization is carried out on two eight-field crop-rotation plots, using small scale technology.

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TILLING AND CROPPING TECHNOLOGY

SOYBEAN CULTIVATION AREA PREPARED

Tselinograd FREUNDSCHAFT in German 10 Apr 80 p 1

[Text] The first area in the USSR specializing in raising soy beans, which will supply the cattle farms of five oblasts of the Republic of Kazakhstan with protein fodder additives, is coming into existence on the left bank of the Syrdarya River. Yesterday, the soil-improvement specialists turned over approximately 1,000 hectares of new irrigated soil to the farmers of three sovkhozy, and today plows and planting machinery are in use there. They travel over the fields at intervals of a few meters. The seed of the Hybrid 670 type, which is distributed by districts here, is put into the soft, moist earth. Its stalks are stable in storage and its hulls are resistant to splitting and failing to come to maturity. The soil-improvement specialists are still working on the neighboring field. They have decided to speed up the construction of the waterworks and the irrigation network on the large Kzylkum soy-bean-raising project, so that they can increase the area devoted to soy beans one and one-half times during the coming year. The Soyuzgiproris Institute took care of planning the parcels of land. Automatic equipment and television apparatuses will provide the required watering arrangements on all fields. The scientists from the Union Research Institute for the Cultivation of Cotton in Tashkent are working out the rotation of cotton and soy bean crops fro the new area. The engineers of Kazakhstan are developing equipment for processing the soy beans.

In response to the resolution of the CPSU Central Committee and the USSR Council of Ministers "On Additional Measures for Increasing the Production of Roughage and Succulent Fodder in 1980 and Improving Their Quality," the farmers of Kazakhstan are doubling the area devoted to soy beans this spring. Soy beans will be planted on 15,000 hectares of land, with the type of beans to be planted locally being selected from among four different types, and foreign types with high yields will be tested.

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FORMER WASTELAND IN KAZAKHSTAN TO BE USED

Tselinograd FREUNDSCHAFT in German 14 May 80 p 1

[Text] Thousands of hectares of formerly barren saline soil in central and northern Kazakhstan, on which only camel's thorn used to grow, are being transformed into arable land. People engaged in farming in the Dzhezkazganskaya, Karagandinskaya and Tselinogradskaya Oblasts have started with a heavy sowing of early grains and perennial grasses in these new lands.

The Tselinny and 25th Party Congress of the CPSU Sovkhozy, of the Dzhezhazganskaya Oblast, and dozens of other agricultural enterprises will cultivate more than 1,000 additional hectares. Because of the improvement of the saline soil, more than 800,000 hectares have been put under cultivation in the republic since the beginning of the five-year plan, and one-third of them during the current year.

Saline soil becomes productive when the farmers deal with it skillfully. The specialized teams of the Goskomsel'khoztekhnika provide the groundwork for a good harvest. They process the new-lands areas in accordance with technological maps, providing them with phosphate gypsum.

The scientists recommended a special agricultural technique and early sowing for the saline-soil areas right after they have been worked in the spring. In this case, the seed goes into the thoroughly wet soil even before the crust which is so typical of saline soil has formed. The crop yields are regularly high in the new lands. In the Uryupinski and Krasny Flag Sovkhozy of Tselinogradskaya Oblast, the saline soil yields from 10 to 12 decitions of wheat and barley per hectare annually, and on some parcels of land it yields 20 decitons. The salt-resistant shitnyak, melilot, Sudan grass and fodder millet feed crops also do well there.

The scholars at the Institute for Soil Science at the Academy of Sciences of the Republic of Kazakhstan have prepared recommendations for the reclamation of several million hectares of saline soil during the coming decade. The enterprises in the Karatau-Dzhambul industrial region have assumed the responsibility for the delivery of phosphate gypsum. They produce from 60,000 to 70,000 tons of phosphate gypsum per year from production residues and will bring their output to 250,000 tons annually in the near future.

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SUMMER GRAIN SOWING IN ALMA ATINSKAYA OBLAST

Tselinograd FREUNDSCHAFT in German 3 Apr 80 p 1

[Text] The sowing, which had begun in the parts of the Republic of Kazakhstan farthest to the south 3 weeks ago, now has reached the valleys of the northern Tienshans. The farmers of the Talgar, Dzhambul, Ili and Kurtinski Rayons in Alma-Atinskaya Oblast have already cultivated the first 1,000 hectares of arable land.

The workers in the villages of that oblast are working under the slogan, "Achieve a rich harvest, sell 250,000 tons of grain to the state and exceed the quotas of the five-year plan." All items included in the harvest were incorporated in the calculations. Only types of seed distributed by districts and mostly first and second-class seed, are sown. Phosphorus fertilizers are put into the ground with the seed. Natural fertilizers were added to the soil. During the winter, 1.7 million tons of natural fertilizer were brought to the fields, and that was more than in any previous year.

In the semidesert area, where more than 100,000 hectares of new lands have been opened up, the farmers are sowing the grain in strips approximately 50 meters wide, alternating with strips of grass, in accordance with the example of the workers of the Iliyski and Kaskelenski Sovkhozy. Protected by these strips of grass and woods, the seeds will be able to resist winds. As a result, the yields per hectare will increase by 2 to 4 decitons. The fields will no longer be endangered by wind erosion. The Nutans 970 barley, which gives maximum yields on dry ground, is sown on most fields.

The farmers want to plant the entire area of almost 400,000 hectares in summer grain in from 5 to 7 days.

They are counting on making full and effective use of the technology which is available. The 500 units, teams and working groups which have been formed in the agricultural enterprises will work according to the Ipatovo method. The agricultural enterprises in Chimkentskaya and Dzhambulskaya Oblasts have also started sowing grain.

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BRIEFS

KHABAROVSKIY KRAY FERTILIZERS--According to the Khabarovskiy Kray statistical directorate to date 171,938 tons of organic fertilizers have been distributed in the kray's fields, or 12 percent of the plan. Machine operators of the Kraysel'khoztekhnika Association have distributed 116,797 tons of this amount. [Khabarovsk Domestic Service in Russian 0900 GMT 13 Nov 79]

PRIMORYE FERTILIZER CAMPAIGN--A shock 2-month period of organic fertilizer distribution to the fields of Primorye will end in 2 days time. To date only 2,101,177 tons of fertilizer have been delivered to the fields of a target of at least 3 million tons. Only one rayon has so far fulfilled its plan, Lazovskiy rayon. Despite certain successes in the production of agricultural produce the kray's farmers are still heavily in debt to the state. During the 4 years of the 5-year plan, for instance, more than 50,000 tons of vegetables and as many potatoes have not been delivered to the state. This year's targets call for a harvest of 86,000 tons of potatoes and 103,000 tons of vegetables in the kray. [Vladivostok Domestic Service in Russian 0930 GMT 18 Jan 80]

SOWING COMPLETED IN CHIMKENT--The farmers in Chimkenstskaya Oblast have completed the sowing of summer grain. The fields were only planted with seed in good condition for sowing. The required mineral fertilizers and herbicides were embedded in the soil along with the seed grain. The Krasnaya Zbezda and Krasnovodopadskaya 210 types of wheat, which are high-yielding types, are subjected to a process of selection on the largest parcels of land. The yields per hectare are expected to increase as a result. The entire technology was concentrated in the complex teams and the work groups which were organized in accordance with the Ipatovo method. The services supplied by the State Sel'khoz Technique Committee provided guaranteed maintenance of the sowing machines. As a result, most of the agricultural enterprises in the district were able to complete their sowing much faster than in the previous year in spite of frequent rains. In the final year of the Tenth Five-Year Plan, the farmers in the district have increased the amount of land planted in grain by more than 7,000 hectares by opening up wasteland and pasture land which was not very productive. [Text] [Tselinograd FREUNDSCHAFT in German 10 Apr 80 p 2] 9258

SOWING OF GRAIN IN ALMA-ATA--The farmers who have finished the sowing of grain along the edge of the desert have passed their final examination as expert agriculturists. In the Otegen, Ashchizu, Sarybulak and Kerbulak Valleys and on the Karoi Plateau, rains fell which provided enough moisture for the sprouting and greening of the seed until the heat of May arrives. Steep variations in temperature have been a characteristic feature of this spring. As a result, the ground has only warmed up slowly, and that acts as a hindrance to sowing. The farmers must demonstrate a high degree of expertise to plant the 100,000 hectares of summer grain on the plain in 7 or 8 days. [Text] [Tselinograd FREUNDSCHAFT in German 10 Apr 80 p 1]

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